

A Comparative Study on the Differential Susceptibility of *Mangifera indica* and *Mangifera zeylanica* to Common Postharvest Diseases

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The commercially exploited mango cultivars worldwide belong to the species *Mangifera indica*, although the genus *Mangifera* has several species. *M. zeylanica* or 'Etamba' is a species endemic to Sri Lanka. The commonest diseases affecting commercial mango cultivars in Sri Lanka are anthracnose caused by *Colletotrichum gloeosporioides* and stem-end rot caused by *Botryodiplodia theobromae*. Although infection by these fungi can take place during fruit development, both the diseases develop into visible lesions only after harvest and ripening when antifungal resorcinols and gallotannins decline and latex, containing resorcinols and the enzyme chitinase dries up. No studies have been carried out to date to test the susceptibility of endemic 'Etamba' to these postharvest diseases or look in to its constitutive defences.

Fruits at harvesting maturity were collected from the mango (*M. indica*) cultivars 'Karutha Colomban,' 'Willard,' 'Rata' and also from *M. zeylanica*. Fruits were surface disinfected with 70 % alcohol and then inoculated with a conidia suspension (10^5 conidia/ml) of *C. gloeosporioides* to test the susceptibility to anthracnose. Fruits were inoculated for stem-end rot by making a fresh cut at the stem-end of fruits and placing mycelia plug of one week old *B. theobromae* culture on the cut surface. This plug was removed following 24 hours incubation at 28 ± 2 °C and 100% RH. Inoculated fruits were maintained in moist chambers and daily observations were made. Once symptoms appeared, lesion area was measured. Natural disease development was also observed in uninoculated fruits of 'Etamba'. Unripe fruit peels of 'Etamba' were extracted with dichloromethane and methanol (1:1, v/v) and the extract was dried *in vacuo* and subjected to the TLC *Cladosporium* bio-assay to observe antifungal activity.

Of the commonly observed postharvest diseases, only stem-end rot naturally develop in 'Etamba'. However, the fruits developed both anthracnose and stem-rot upon inoculation. 'Etamba' did not show a significant resistance to anthracnose compared to 'Karutha Colomban' or 'Rata'. However, it was significantly less susceptible to anthracnose than 'Willard'. 'Etamba' was also equally susceptible to stem-end rot as 'Willard' or 'Rata', but significantly less susceptible compared to 'Karutha Colomban'. On TLC bio-assay, peel extracts of 'Etamba' showed antifungal inhibition zones at roughly the same R_f (retention factor) values as seen in peel extracts of *M. indica* species. The area of the antifungal inhibition zones given by the peel extracts of 'Etamba' were greater than those given by 'Willard' and 'Karutha Colomban'.

These studies indicate that *M. zeylanica* although a different species is equally susceptible to the common postharvest diseases affecting the *M. indica* cultivars, and

appears to have the same constitutive antifungal substances as those present in the peel of *M. indica* cultivars.

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